



DESIGN REVIEW COMMISSION STAFF REPORT

MEETING

DATE: January 17, 2017

STAFF: Vivek Damodaran, Planner I

SUBJECT: **FENCE AND LANDSCAPING IMPROVEMENTS
P2017-093; DESIGN REVIEW
CEQA CATEGORICALLY EXEMPT – SECTION 15303
APN 160-591-70**

922 Machin Ave
Novato, CA 94945
415/899-8900
FAX 415/899-8213
www.novato.org

REQUESTED ACTION

Consider taking action for approval on a Design Review application to allow for the installation of new fencing and landscaping, to secure and screen a gas pipeline monitoring facility.

PURPOSE OF DESIGN REVIEW

Analysis of this application is limited to the design aesthetic of the proposed fencing and landscaping. The equipment and systems directly related to monitoring of the gas pipeline are excluded from the scope of this discretionary design review process.

The State of California's Constitution establishes the California Public Utilities Commission (CPUC), with jurisdiction over all public utilities subject to control by the Legislature.

Additionally, California's Constitution states "A city, county, or other public body may not regulate matters over which the Legislature grants regulatory power to the Commission" (*California Constitution, Article XII § 8*). CPUC's General Order Number 112-F governs Pacific Gas and Electric's (PG&E) design, construction, testing, operation, and maintenance of gas gathering, transmission, and distribution piping systems. Pacific Gas and Electric's representatives have discussed with Staff, the authority granted by the California Public Utilities Commission outlined above, but have voluntarily agreed to this design review process.



SITE DESCRIPTION

The project site is a vacant 38,841 square-foot (0.89 acres) lot, located southeast of the South Novato and Redwood Boulevard intersection, abutting the Saint Anthony Catholic Church's easternmost property line.

PROJECT DESCRIPTION

The applicant has proposed to improve this vacant parcel with an 8-foot tall perimeter fence and landscaping to secure and screen a gas pipeline monitoring station. This station includes automated gas valves and a 30-foot tall monopole with a 1-foot tall radio antenna mounted on it.

BACKGROUND

Property Owner:	Pacific Gas & Electric
Assessor's Parcel No.:	160-591-70
Property Size:	38,841 square feet
General Plan Designation:	Parkland (P)
Existing Zoning:	Parkland (PL)
Existing Use:	Vacant; Underground gas pipelines
Adjacent Zoning & Uses:	North East } Planned District (PD); Residential South } West – Low Density Residential (R1-10); Religious Facility

ENVIRONMENTAL ASSESSMENT

The proposed fencing and site improvements have been determined to be categorically exempt from the requirements of the California Environmental Quality Act (CEQA) and the City of Novato Environmental Review Guidelines pursuant to CEQA Guidelines Section 15303 (New Construction or Conversion of Small Structures) and Section 15304 (Minor Alterations to Land). Section 15303 exempts projects involving accessory structures “including garages, carports, patios, swimming pools and fences.” Section 15304 exempts “new gardening or landscaping; including the replacement of existing conventional landscaping with water-efficient or fire resistant landscaping”.

STAFF ANALYSIS

The Design Review Commission's action to approve the proposed fencing and landscaping must be based on the findings of approval required for design review actions, specified in Novato Municipal Code Section 19.42.030.F. To assist in the decision making process, the analysis below lists each finding followed by staff's assessment on whether the project proposal conforms thereto.

Design Review Finding No. 1: The design, layout, size, architectural features and general appearance of the proposed project is consistent with the General Plan, and any applicable Specific Plan with the development standards, design guidelines and any

applicable provisions of the Municipal Code, including the Zoning Ordinance and any approved Master Plan and Precise Development Plan.

General Plan Consistency -

The Novato General Plan provides a framework of policies addressing such matters as land use, transportation, circulation and community character. These policies are intended to coordinate Novato's physical development over a 20-year period. In this instance, the Design Review Commission should consider applicable design policies of the Community Identity Chapter of the General Plan when reviewing this proposal. Relevant Community Identity (CI) policies are:

CI Policy 1 Compatibility of Development with Surroundings. Ensure that new development is sensitive to the surrounding architecture, topography, landscaping, and to the character, scale, and ambiance of the surrounding neighborhood. Recognize that neighborhoods include community facilities needed by Novato residents as well as homes, and integrate facilities into neighborhoods.

This design review process ensures that the design, layout, size and general appearance of the project proposal is consistent with the general plan and all applicable provisions of the zoning code. The project site is located proximate to a residential condominium neighborhood to the north, east, and south sides. Saint Anthony's Catholic Church is located immediately west of the project site. The proposed perimeter fencing, excluding the gates, consists of 6-foot tall solid fence boards, with an additional 2-feet of a lattice. The fence is parallel to South Novato Boulevard, extending approximately 179-feet, and setback approximately 30 feet from the street. Two vehicle access gates are proposed along this frontage; concrete driveway aprons are proposed at each gate. The eastern and western portions of the fencing will extend south, approximately 98 feet, parallel to both of the side property lines. An additional 16-foot wide gate is proposed towards the far southeast portion of the fence perimeter.

Along the perimeter fencing, fronting Novato Boulevard. and along the easterly and southerly limits of the project site, landscaping is proposed consisting of trees and shrubs. The combined fencing and landscaping is intended to screen the visible (above surface) gas pipeline monitoring equipment from surrounding views serving to integrate said equipment more attractively and protect the character and ambiance of the surrounding neighborhood.

CI Policy 7 Landscaping. Encourage attractive native and drought-tolerant, low-maintenance landscaping responsive to fire hazards.

The project includes a landscaping plan that offers a blend of fire resistant and drought-tolerant vegetation. The landscaping together with the wooden gates and lattice adorned wooden perimeter fencing will serve as an attractive visual screen from surrounding views to the site. The project will include several varieties of bushes and trees, all of which have been chosen due to their drought tolerance or fire resistance. This proposed attractive, drought-tolerant, low-maintenance landscaping is considered to be consistent with General Plan Community Identity (CI) Policy 7. Design Review Finding Number 2, below, further details the landscaping plan.

Zoning Ordinance –

The subject parcel has a General Plan land use designation of Parkland (P), as such, it is a part of the Parkland (PL) zoning district. Section 19.14.040 – Special Purpose District General Development Standards states that development standards for projects within the PL zoning district shall be determined through a project review and approval. The design review and approval provided herein is in conformance with this standard.

Design Review Finding No. 2: The proposed project would maintain and enhance the community's character, provide for harmonious and orderly development, and create a desirable environment for the occupants, neighbors, and visiting public.

The proposed fence and landscaping is an aesthetically superior alternative to a chain link fence, typically used to screen utility services or industrial land uses.

The landscaping plan utilizes a variety of vegetation located within a 6-foot wide landscaping area to enhance the site. No vegetation will be planted directly over the subsurface gas pipelines, as such, the eastern portion (facing the Saint Anthony Catholic Church's parcel) will remain unplanted. The plan includes the installation of 36-inch boxes of English Oak (*Quercus robur*) trees throughout the landscaping area, strategically placed to avoid sensitive areas near the subsurface gas pipes. 5-gallon bags of Deer grass (*Muhlebergia rigens*), 15-gallon bags of California lilac (*Ceanothus* or 'Dark Star'), and 5-gallon bags of Emerald Carpet Manzanita (*Arctostaphylos uva-ursi*), are the brush-like plants proposed throughout the landscaping area proximate to the proposed fences.

English Oak trees, when mature, should provide a significant canopy and a large stout trunk, contributing to a long-term aesthetic, while also screening the equipment within the fenced enclosure. These trees, combined with the previously listed brush-like plants, and solid perimeter wood fencing will create a full landscaping area, which will reduce the impacts to the proximate neighborhood while also contributing to the screening of the gas pipeline equipment. Thus, the project will maintain, and enhance the community's character, provide for harmonious and orderly development and create a desirable environment for the occupants, neighbors, and visiting public.

Design Review Finding No. 3: The proposed development would not be detrimental to the public health, safety, or welfare; is not materially injurious to the properties or improvements in the vicinity; does not interfere with the use and enjoyment of neighboring existing or future developments and does not create potential traffic, pedestrian or bicycle hazards.

Prior to any construction, the project plans will be reviewed by the responsible public agencies to ensure that public safety and welfare are maintained and enhanced. The proposed fencing and landscaping shall not cause material injury to surrounding properties, their use, and potential redevelopment.

The project site is intended to be remotely operated, as such, there will not be any increase in traffic. Two 20-foot wide gates on the western and eastern portions of the frontage fencing, each of which has a 30-foot long driveway leading out to South Novato Boulevard, will allow a safe

distance of travel before entering traffic, alleviating any cyclist or pedestrian hazards.

Staff finds that the proposed fence and site improvements at APN 160-591-70 will not be detrimental to the public health, safety, or welfare; is not materially injurious to the properties or improvements in the vicinity; does not interfere with the use and enjoyment of neighboring existing or future developments and does not create potential traffic, pedestrian or bicycle hazards.

Public Notice

Section 19.58.050 of the Novato Municipal Code requires an action of the Community Development Director to be publicly noticed. Accordingly, notices have been mailed to property owners within 600-feet of the project site.

ALTERNATIVES

1. Approve the fence and landscaping improvements at the subject parcel, as proposed.
2. Approve the fence and landscaping improvements at the subject parcel, with recommended revisions.
3. Continue the public hearing, with direction to staff and the applicant.
4. Do not approve the fence and landscaping improvements at the subject parcel.

RECOMMENDATION

Staff recommends the Design Review Commission approve the design of the fencing and landscaping improvements at APN 160-591-70 as reflected in the Project Plans proposed by PG&E based on Staff Analysis above and the following required findings for Design Review actions.

FINDINGS AND ACTION

CEQA Finding: The proposed project is exempt from the requirements of the California Quality Act (CEQA) pursuant to CEQA Guidelines Section 15303, *New Construction or Conversion of Small Structures*; and Section 15304, *Minor Alterations to Land*. Section 15303 allows accessory structures, including gas utility extensions and fences. Section 15304 allows landscaping that is water efficient or fire resistant.

Design Review Findings: Pursuant to Section 19.42.030.F of the Novato Municipal Code, *Design Review Findings*, and based on the staff analysis above, the Design Review finds:

1. *The design, layout, size architectural features and general appearance of the proposed project is consistent with the General Plan, and any applicable Specific Plan and with the development standards, design guidelines and all applicable provisions of the Municipal Code, including the Zoning Ordinance and any approve Master Plan and Precise*

Development Plan.

2. *The proposed project would maintain and enhance the community's character, provide for harmonious and orderly development, and create a desirable environment for the occupants, neighbors, and visiting public.*
3. *The proposed development would not be detrimental to the public health, safety, or welfare; is not materially injurious to the properties or improvements in the vicinity; does not interfere with the use and enjoyment of neighboring existing or future developments and does not create potential traffic, pedestrian or bicycle hazards.*

CONDITIONS OF APPROVAL

The following conditions shall be met to the satisfaction of the *Planning Division of the Novato Community Development Department*:

1. Design Review shall expire two (2) years from the date of approval unless within that time a building permit has been issued and remains valid.
2. The approval granted herein shall into become effective until all appropriate fees billed by the City of Novato to the application account are paid in full in accordance with the City's cost Base Fee System. Failure to pay said fees may result in the City withholding issuance of related building permit, certificate of occupancy, recordation of final maps or other entitlements.
3. Significant design alterations shall be brought to the Planning Division for consideration. No deviation from approved plans, including color changes or substitution of materials shall be made without staff approval.

The following conditions shall be met to the satisfaction of the *Novato Fire District*:

4. Knox key access shall be installed at the premises conforming to Novato Fire Protection Standard #202.
5. The business shall create and maintain a pre-plan per Fire Protection District ordinance.
6. Indemnity and Time Limitations
 - a. The applicant shall defend, indemnify and hold harmless the City, its agents, officers, attorneys and employees from any claim, action, or proceeding brought against the City or its agents, officers, attorneys, or employees, to attack set aside, void or annul the City's decision to approve the application and associated environmental determination at issue herein. This indemnification shall include damages or fees awarded against the City, if any, cost of suit, attorney's fees, and other costs and expenses incurred in connection with such action whether incurred by the applicant, the City, and/or parties initiating or bringing such action.

- b. The applicant shall defend, indemnify and hold harmless the City, its agents, officers, employees, and attorneys for all costs incurred in additional investigation (such as the environmental determination at issue herein or any subsequently required Environmental Document), if made necessary by said legal action and if the applicant desires to pursue securing such approvals, after initiation of such litigation, which are conditioned on the approval of such documents, in a form and under conditions approved by the City Attorney.
- c. The applicant indemnifies the City for all the City's costs, fees, and damages which the City incurs in enforcing the above indemnification provisions.
- d. Unless a shorter period applies, the time within which judicial review of this decision must be sought is governed by California Code of Civil Procedure, Section 1094.6.
- e. The Conditions of Project Approval set forth herein include certain fees, dedication requirements, reservation requirements, and other exactions. Pursuant to Government Code Section 66020(d)(1), these Conditions constitute written notice of a statement of the amount of such fees, and a description of the dedications, reservations, and other exactions. The applicant is hereby further notified that the 90-day approval period in which you may protest these fees, dedications, reservations, and other exactions, pursuant to Government Code Section 66020(a), has begun. If the applicant fails to file a protest within this 90-day period complying with all of the requirements of Section 66020, the applicant will be legally barred from later challenging such exactions.

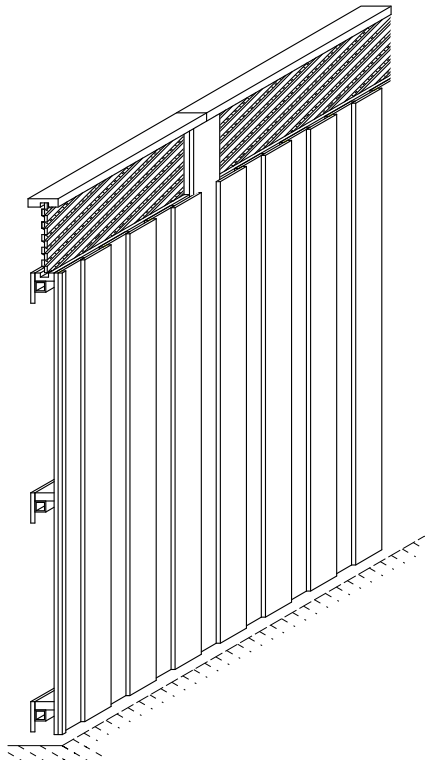
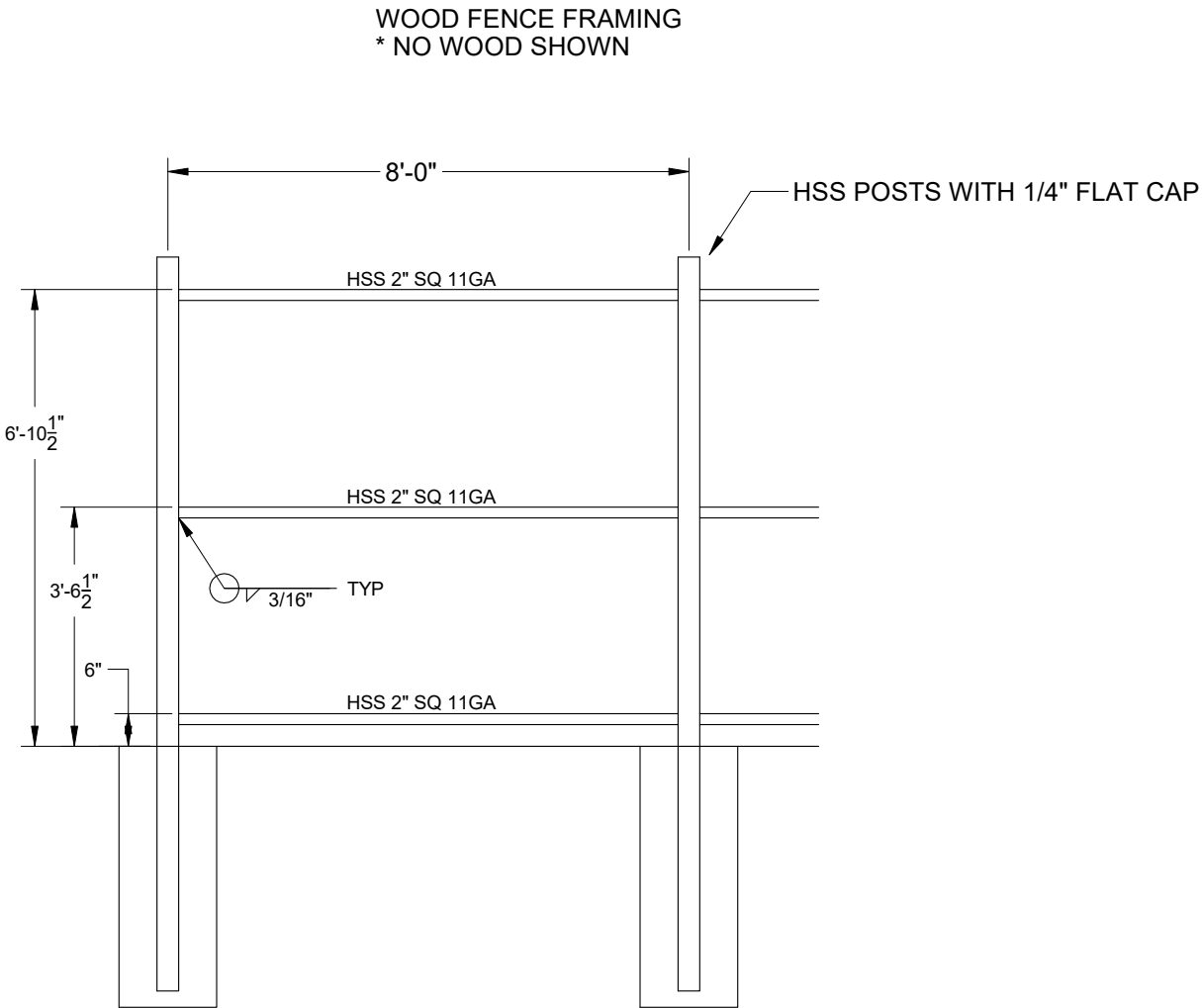
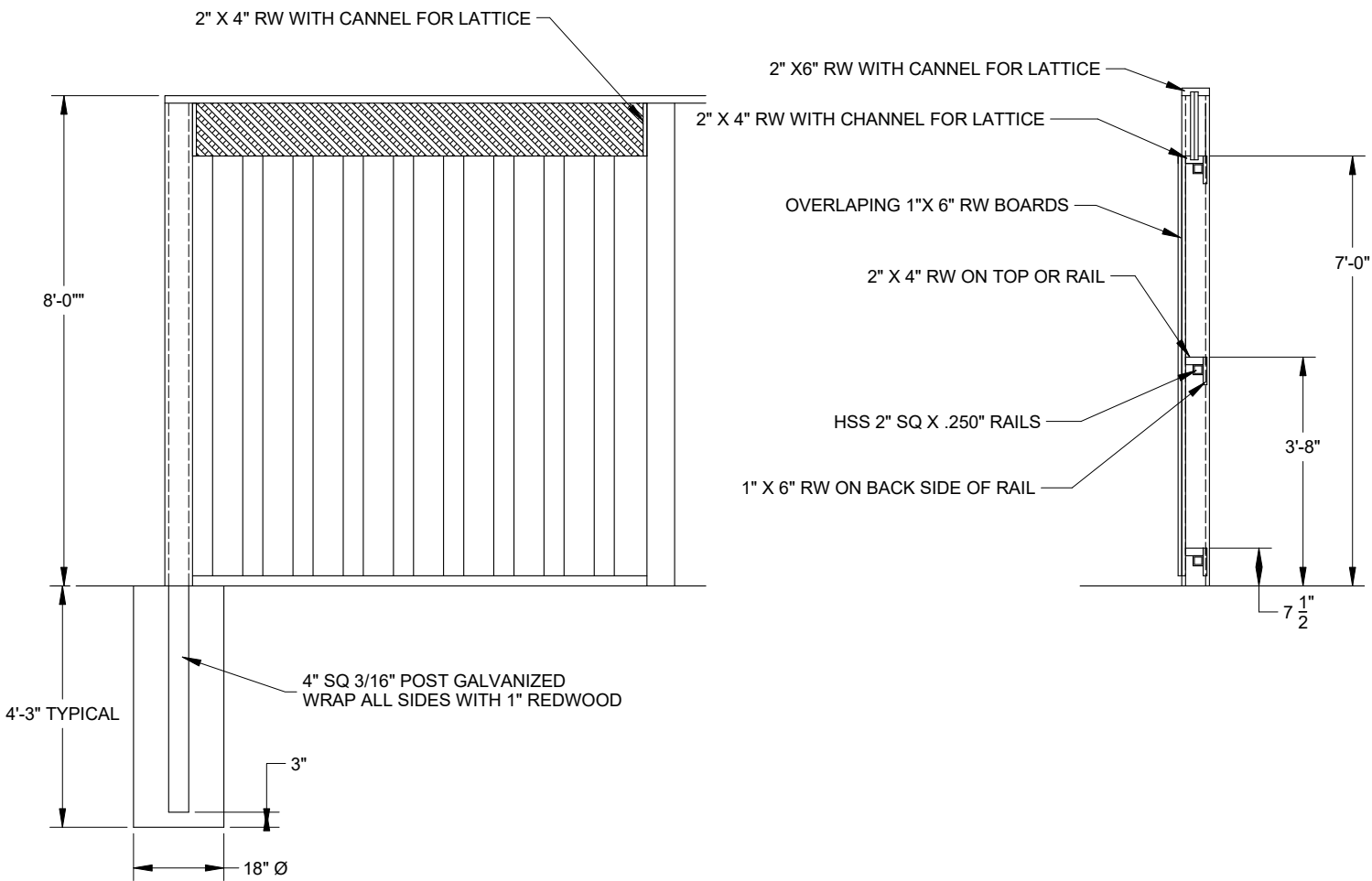
FURTHER ACTION

No further action on the Design Review application will be taken unless an appeal is filed in writing within ten (10) calendar days along with the required filing fee.

Design and construction of this project shall be in accordance with all City ordinances, including the Development Standards Chapter of the Municipal Code. Unless exceptions have been granted heretofore in writing, then none will be allowed by reason of this approval.

ATTACHMENTS




- 1. Fencing Details
- 2. Landscape Plan
- 3. Mechanical Plan
- 4. Project Plans

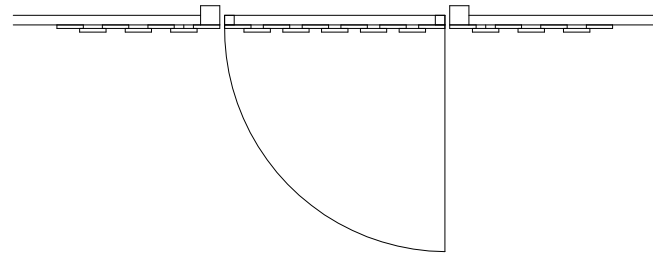
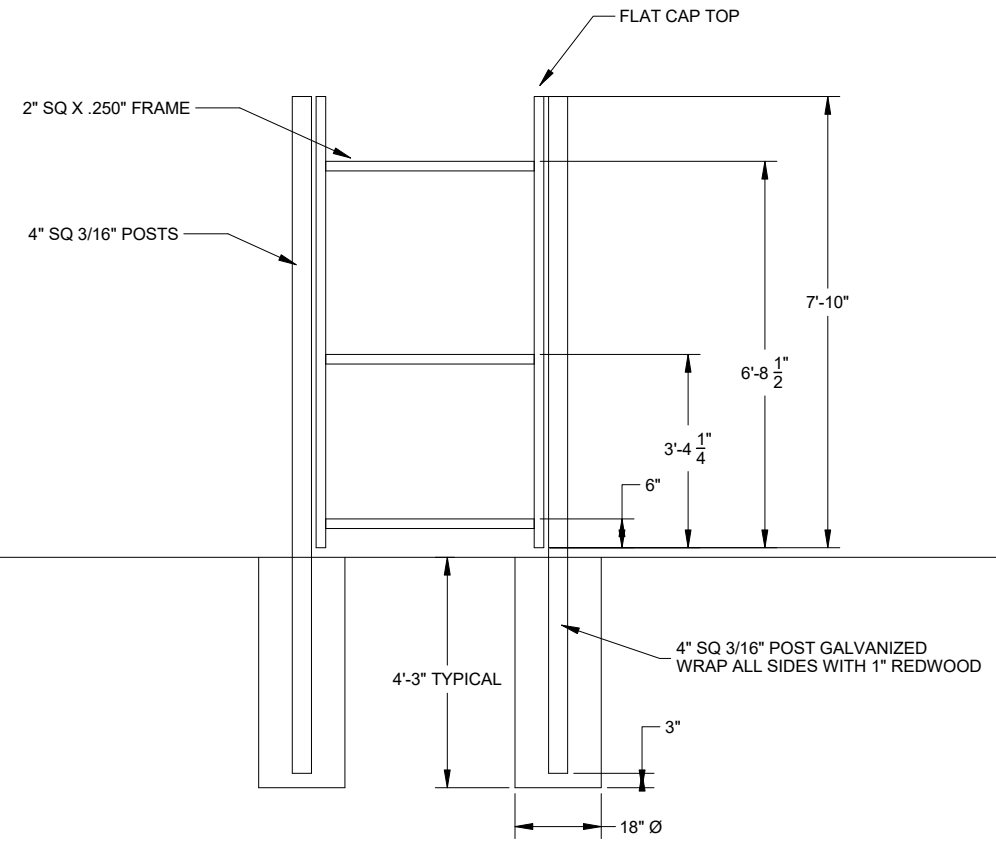
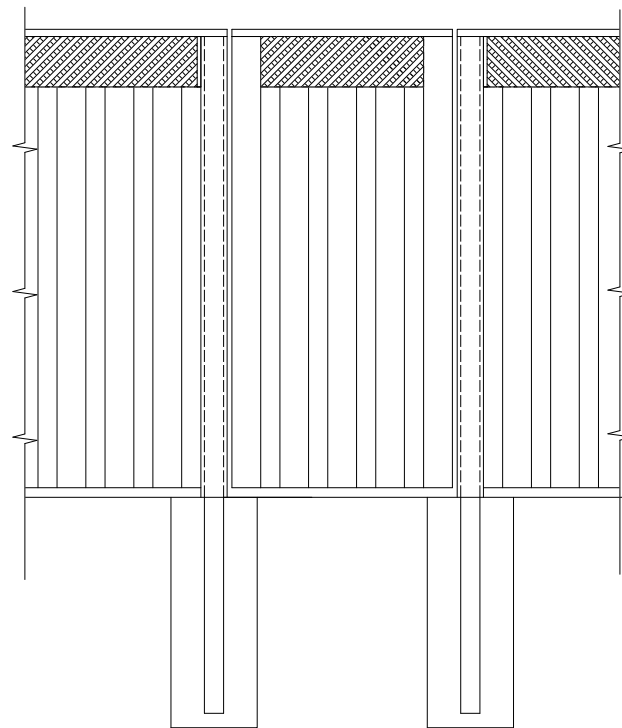


OWNERS REP TO SELECT LATTICE STYLE



- NOTES:
- ALL MATERIALS HOT DIP GALV. PRIOR TO FABRICATION
 - ALL FIELD WELDS TOUCHED UP WITH 95% ZINC RICH PAINT
 - WOOD: ALL WOOD REDWOOD CONSTRUCTION COMMON OR BETTER
 - ALL METAL FASTENERS TO HAVE POLYMER COATING OR HOT DIP GALV FINISH

 CRUSADER FENCE CO., INC.		 	
DRAWN D. TAYLOR		PG & E NOVATO	
JULY 18, 2017			
APPROVED	SIZE A	DWG NUMBER D-1	
	SCALE	REV -	SHEET



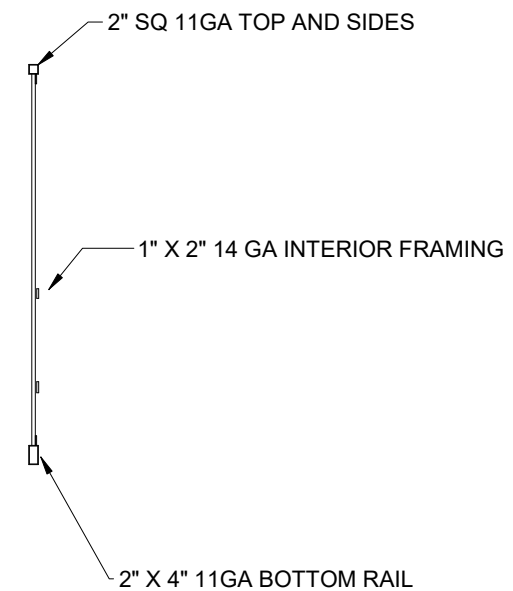
GATE LATCH: STANLEY CD1494 HEAVY DUTY POST LATCH OR EQUAL



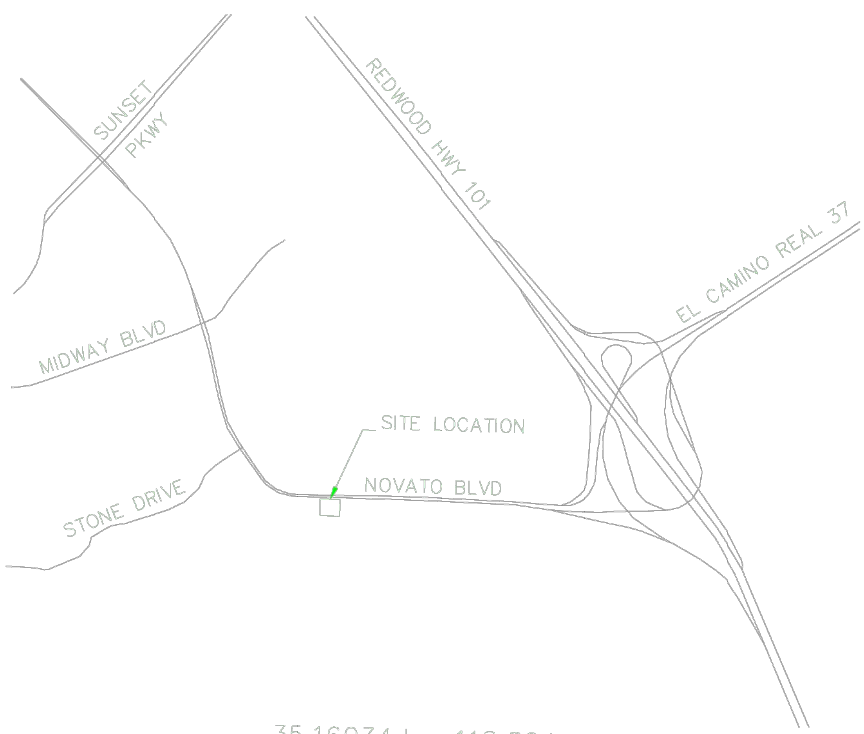
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 - GATE FRAME: 2" SQ 11GA MIN & 2" X 4" 11GA BOTTOM RAIL
 - INTERIOR BRACING 1" X 2" 14 GA MINIMUM
 - WOOD ATTACHED TO INTERIOR WITH 3/8" GALV. CARRAGE BOLTS
 - GATE HARDWARE TO ACCEPT HEAVY PADLOCK
 - 1 PAIR HEAVY DUTY WELD ON HINGES



DRAWN D. TAYLOR		PG & E NOVATO	
JULY 18, 2017		DWG NUMBER D-1	
APPROVED		SIZE A	SHEET
SCALE		REV -	SHEET



PLANT SCHEDULE		
QTY	BOTANICAL NAME / COMMON NAME	NOTE
15	Quercus robur / English Oak	36" box
QTY	BOTANICAL NAME / COMMON NAME	NOTE
15	Arctostaphylos uva-ursi / Emerald Carpet Manzanita	5 gal
22	Ceanothus x 'Dark Star' / California Lilac	15 gal
52	Eriogonum fasciculatum hololeuon / California Buckhead	5 gal
60	Muhlenbergia rigens / Deer Grass	5 gal

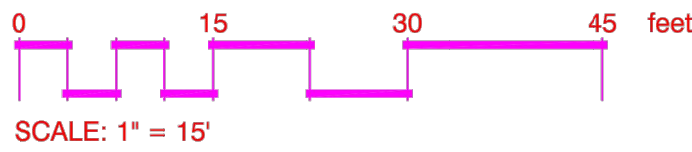


35.16034d, -118.80414d
LAT. LONG / NAD83
VICINITY MAP
NOT TO SCALE

- NOTES:**
1. RETAINING WALL TO BE BUILT PER MARIN COUNTY CONSTRUCTION STANDARDS, DWG. 155 FOR "RETAINING WALL TYPE 15" SLOPING BACKFILL."
 2. DRIVEWAY, CURB AND GUTTER TO BE BUILT PER MARIN COUNTY CONSTRUCTION STANDARDS, DWG'S. 100, 105, 120 AND 125.

- LEGEND:**
- EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - PROPOSED FINAL SPOT GRADE

- DRAWING REFERENCES:**
- 4803355 PIPING - PLAN, MAIN GAS, YARD
 - 4803356 PIPING - SECTIONS & DETAILS, MAIN GAS, YARD



General Notes

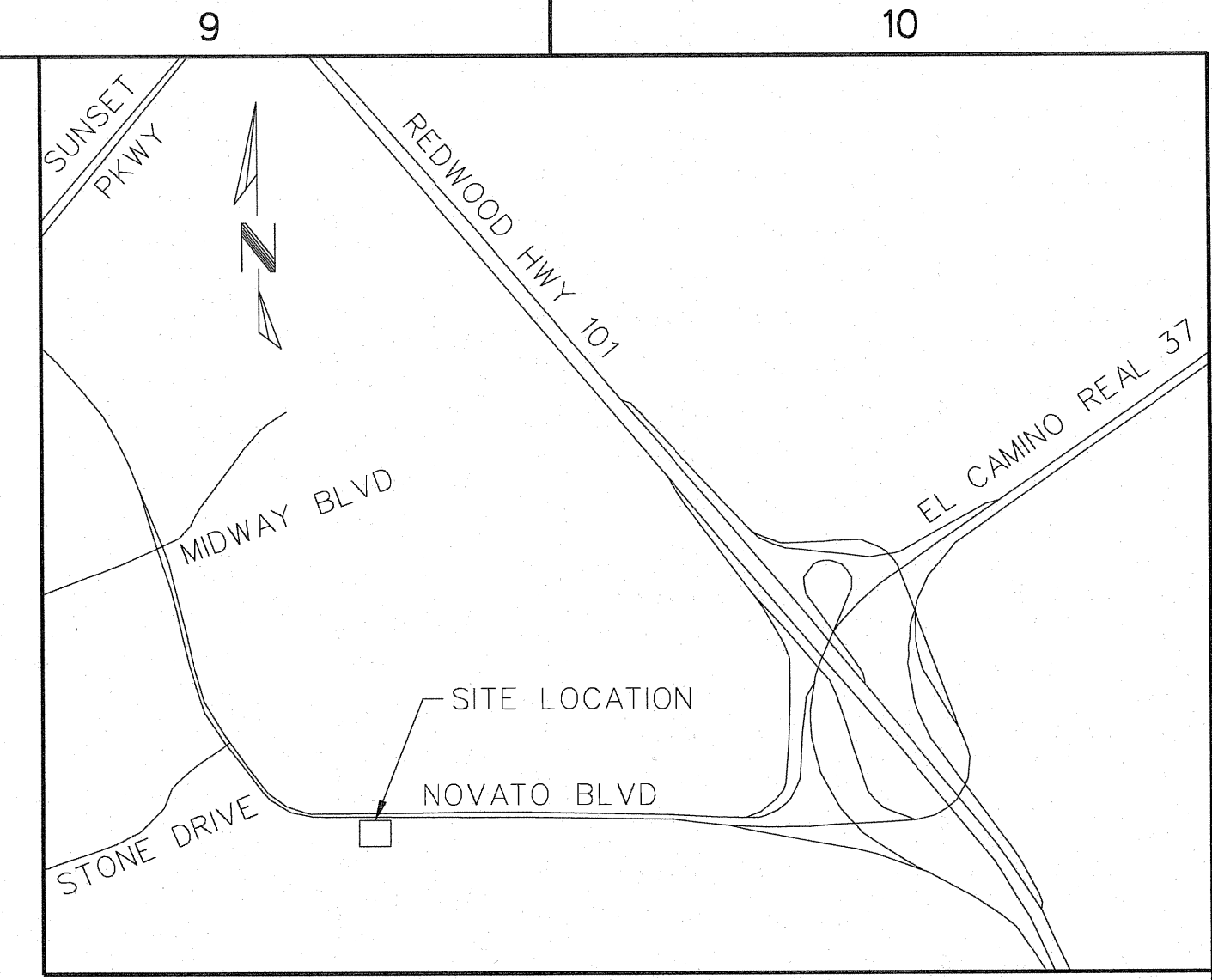
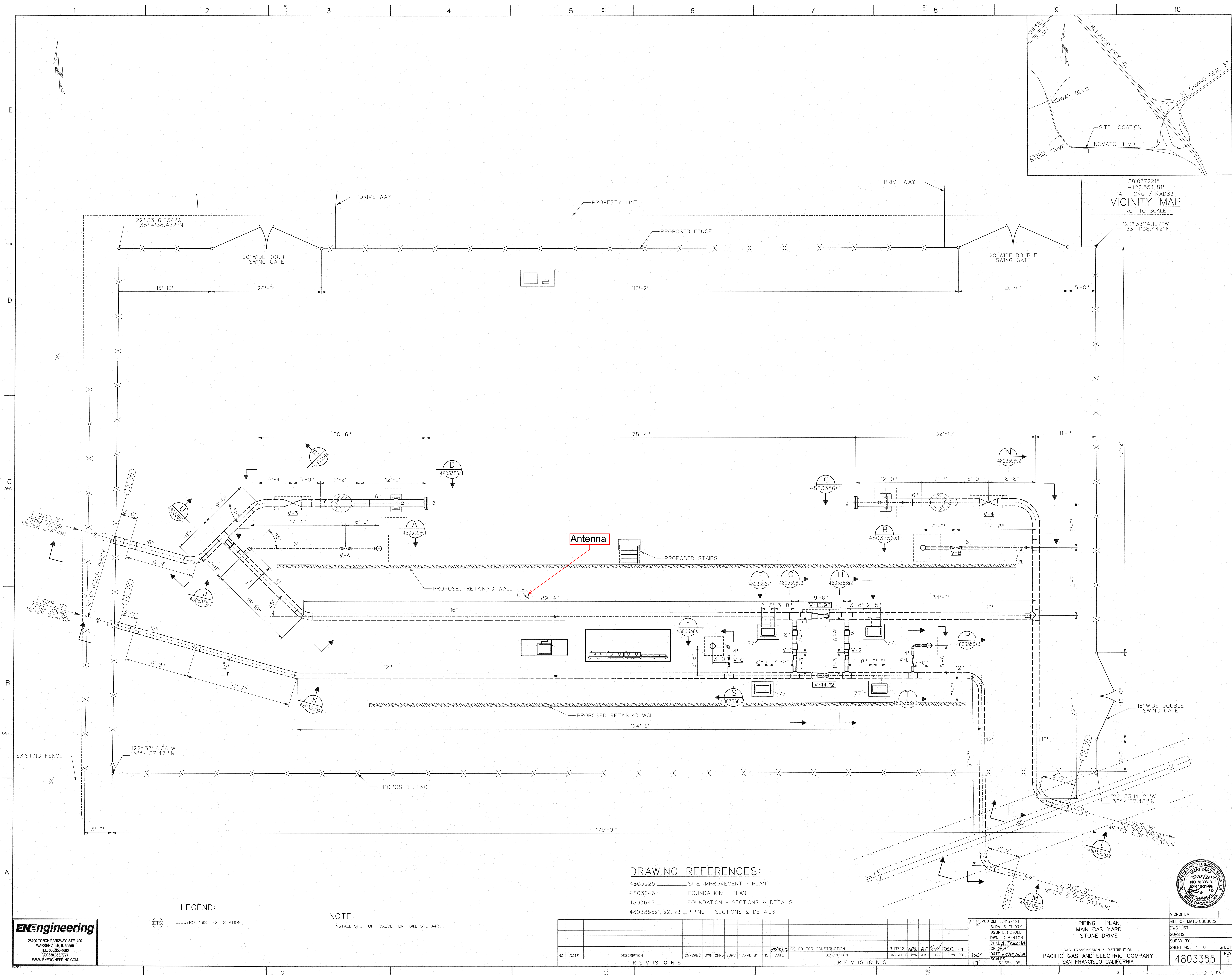
No.	Revision/Issue	Date

Firm Name and Address

DAVEY
RESOURCE GROUP
A Division of The Davey Tree Expert Company

Project Name and Address
V-254 Novato
Novato Blvd

Project	Sheet
Date 07/10/2017	L.1
Scale	



38.077221°
-122.554181°
LAT. LONG / NAD83
VICINITY MAP
NOT TO SCALE

ENEngineering
28100 TORCH PARKWAY, STE 400
WARRENVILLE, IL 60555
TEL 833.353.4000
FAX 833.353.7777
WWW.ENENGINEERING.COM

LEGEND:
ETS ELECTROLYSIS TEST STATION

NOTE:
1. INSTALL SHUT OFF VALVE PER PG&E STD A43.1.

DRAWING REFERENCES:

- 4803525 SITE IMPROVEMENT - PLAN
- 4803646 FOUNDATION - PLAN
- 4803647 FOUNDATION - SECTIONS & DETAILS
- 4803356s1, s2, s3 PIPING - SECTIONS & DETAILS

REVISIONS						REVISIONS					
NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD	BY	NO.	DATE	DESCRIPTION
1	05/12/2017	ISSUED FOR CONSTRUCTION	31137421	GM/SPEC	DWN	CHKD	SUPV	APVD	1	05/12/2017	ISSUED FOR CONSTRUCTION

APPROVED BY: *[Signature]*
DATE: 05/12/2017
SCALE: 3/16"=1'-0"

PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

PIPING - PLAN
MAIN GAS, YARD
STONE DRIVE

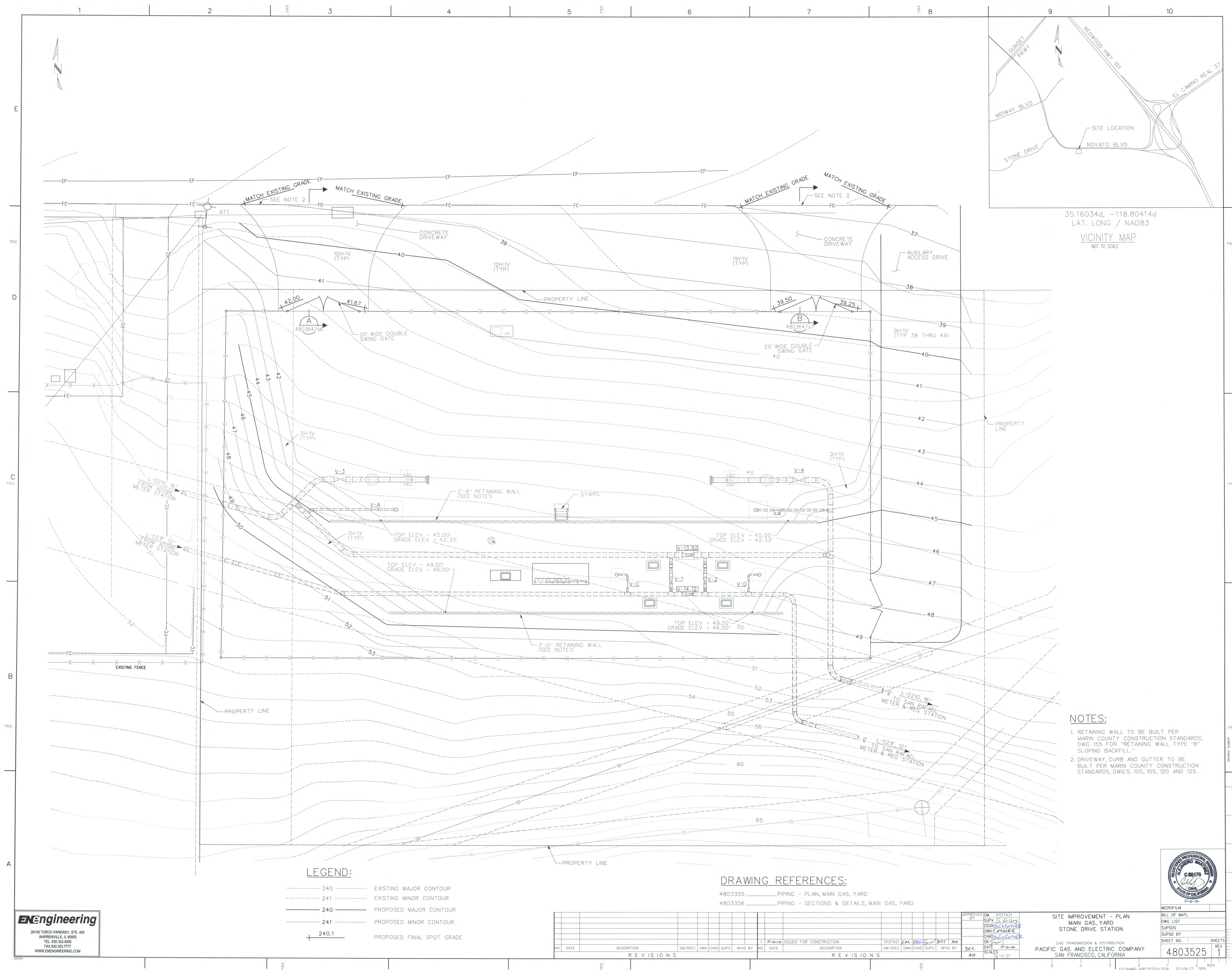
GAS TRANSMISSION & DISTRIBUTION

4803355

PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
NO. 15893
EXPIRATION DATE 12/31/18

REVISIONS

1

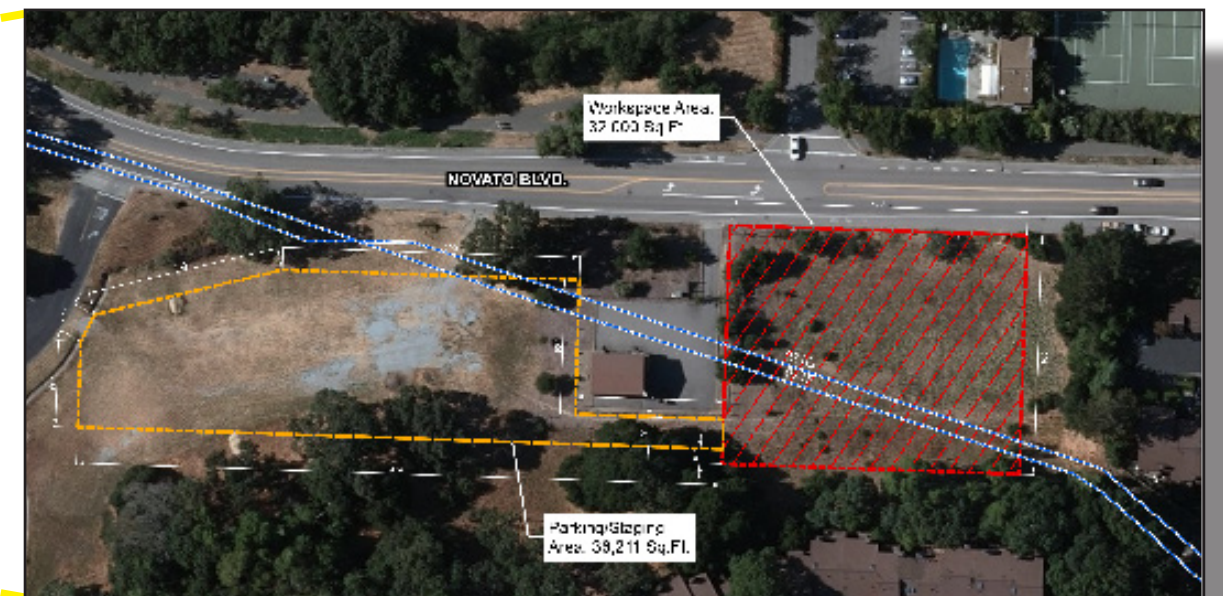
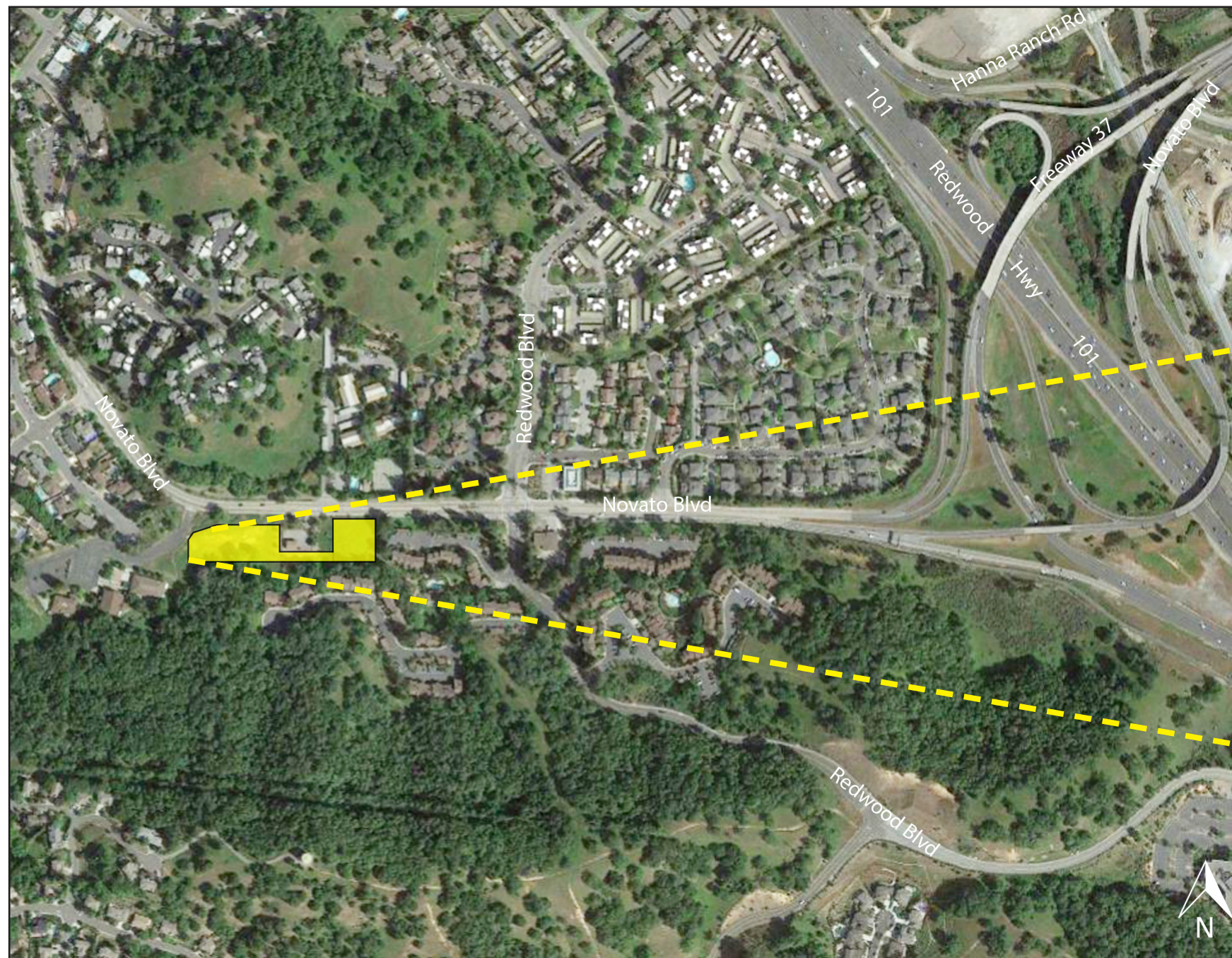




PG&E Stone Station Valve Automation Project

LOCATION: MARIN COUNTY - NOVATO, CA

AREA LOCATION MAP



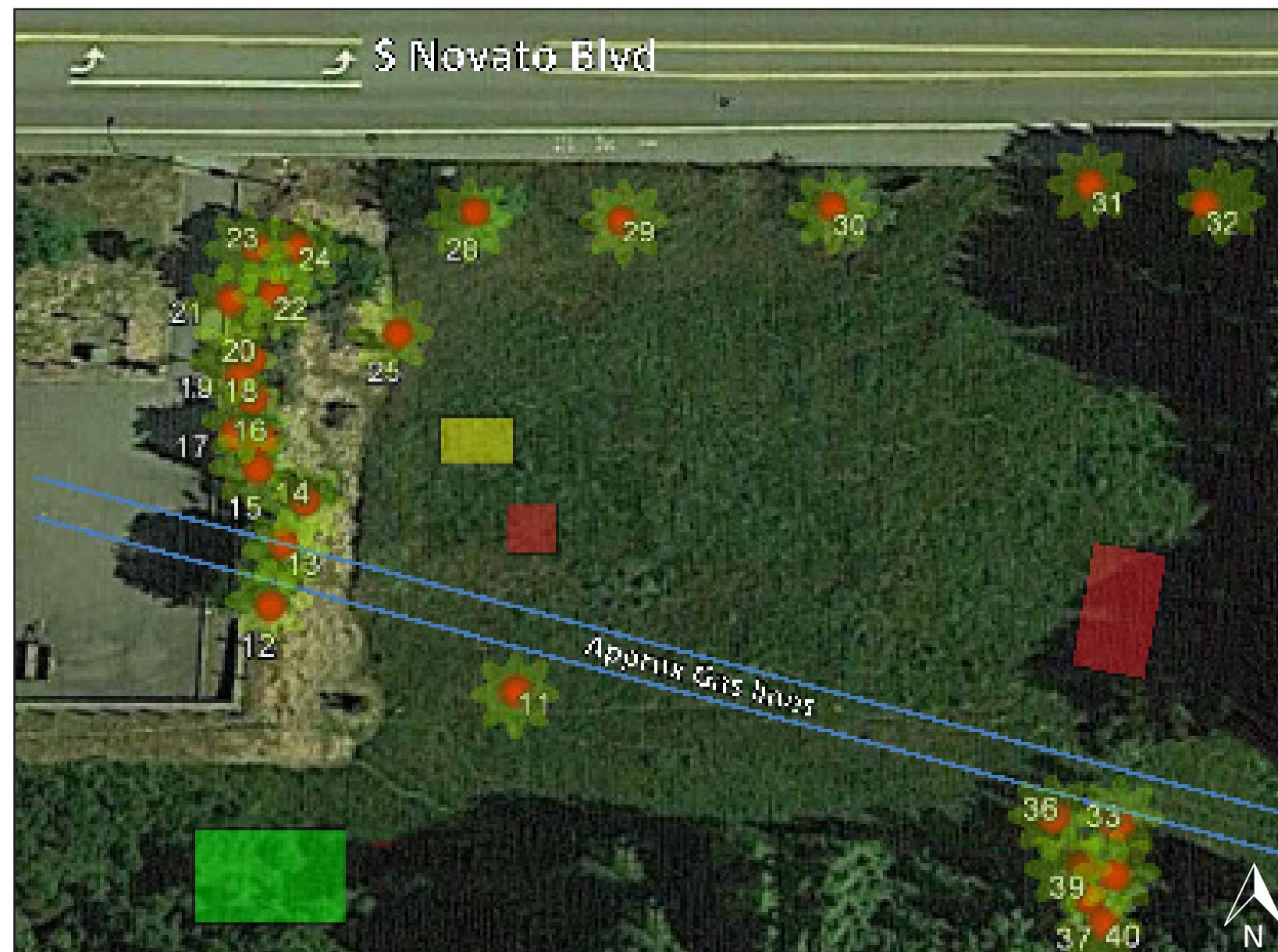
- Pipeline - Existing
- Temporary Parking /Staging Area
- Temporary Workspace Area



PG&E Stone Station Valve Automation Project

LOCATION: MARIN COUNTY - NOVATO, CA

VEGETATION REMOVAL & CONSTRUCTION LAYOUT



Existing trees to be removed



Coastal Sage Scrub
(*Artemisia californica*)
To be removed



Dwarf Coyote Brush
(*Baccharis pilularis*)
To be removed



Pampas Grass
(*Cortaderia selloana*)
To be removed

LEGEND:

[K-X"]

CONDUIT & SIZE

BELOW GROUND CONDUIT

T -

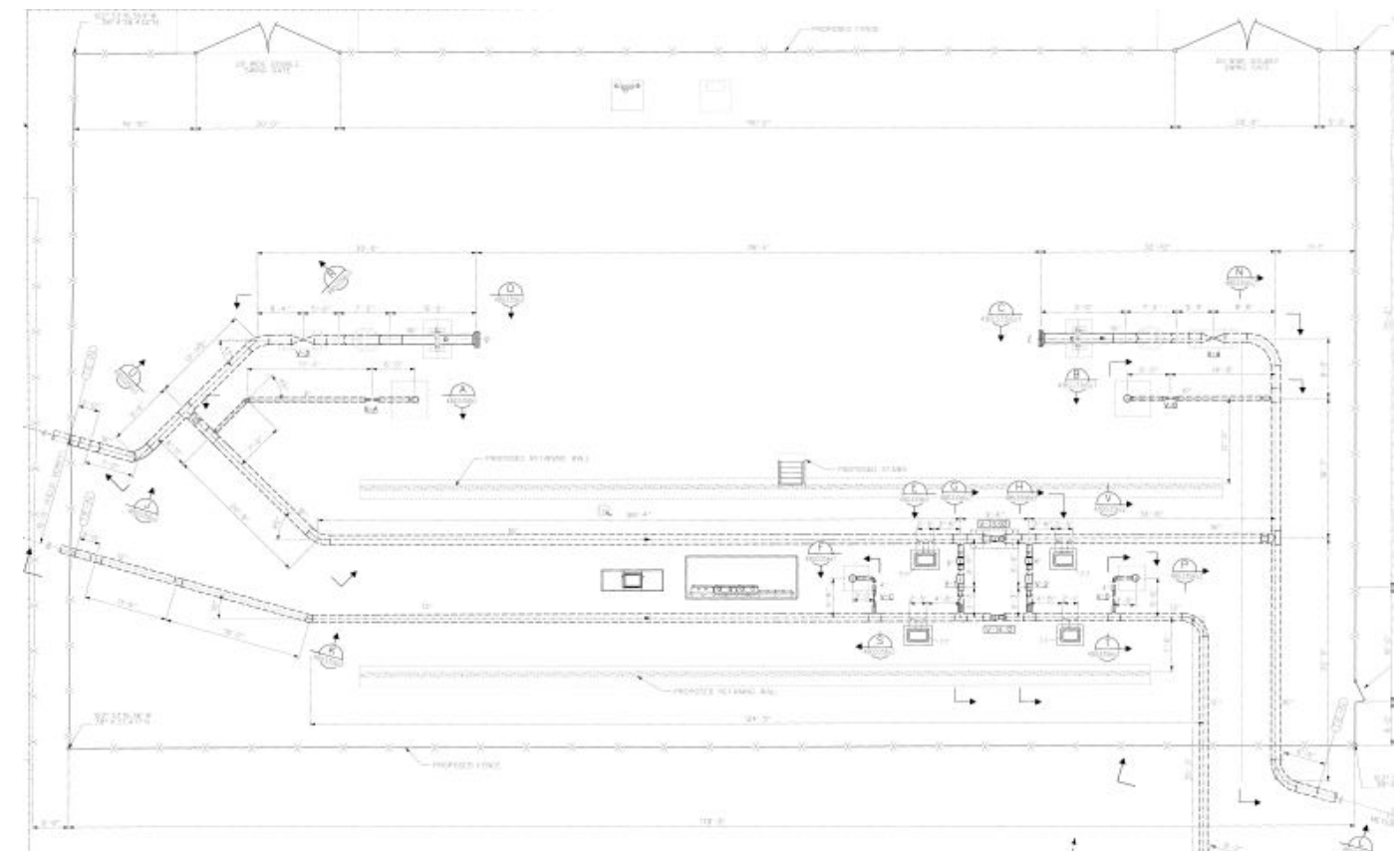
TOP CONDUIT

B -

BOTTOM CONDUIT

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BILL OF MATERIAL ITEM



Existing



Existing



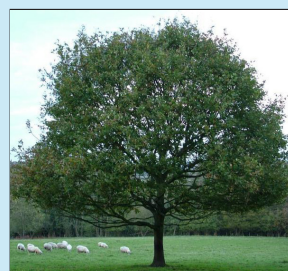
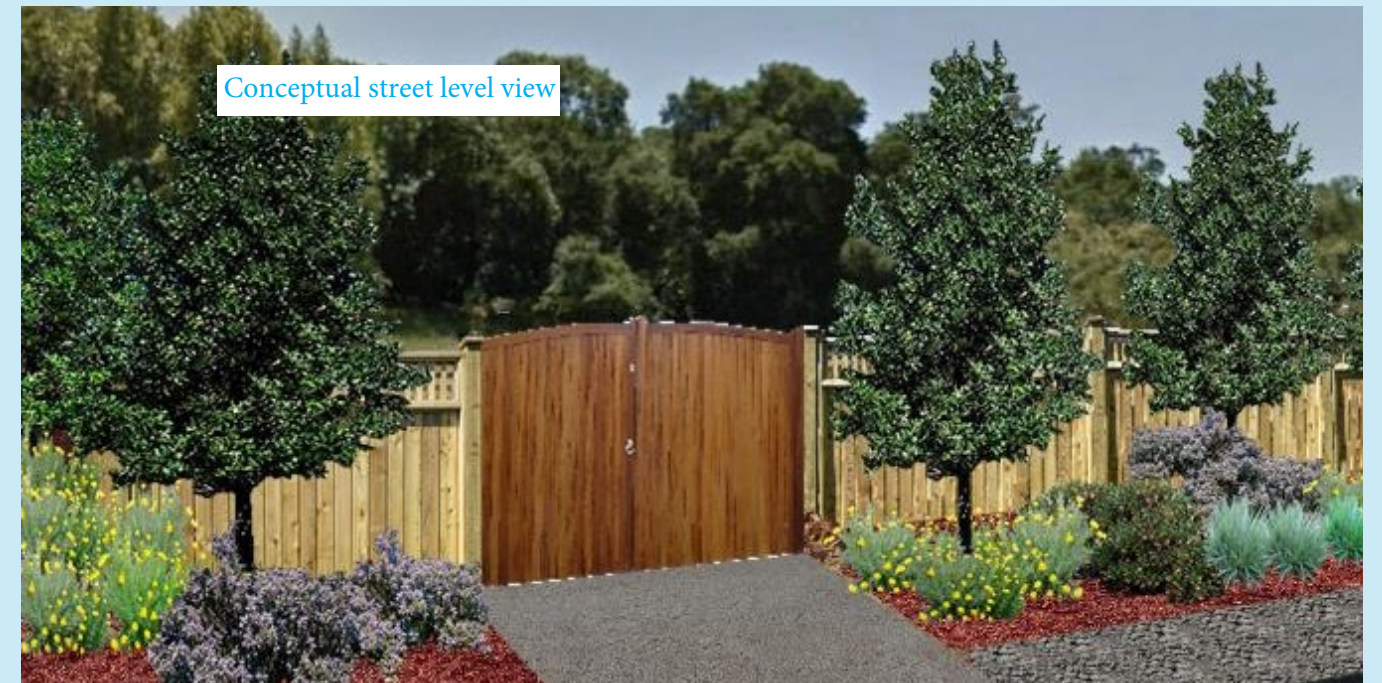
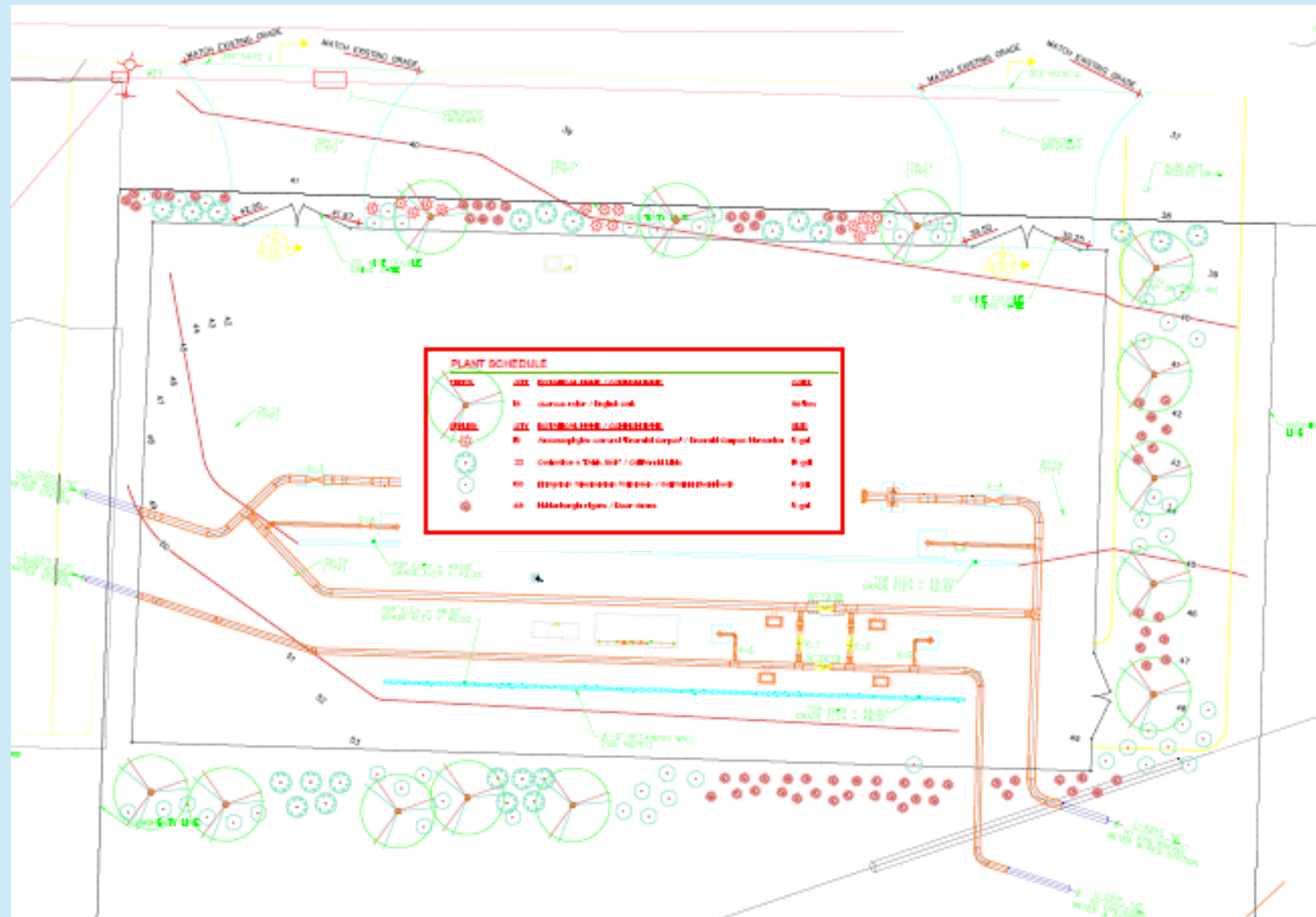
Existing



PG&E Stone Station Valve Automation Project

LOCATION: MARIN COUNTY - NOVATO, CA

PROPOSED PLANTING PLAN & RESTORATION



English Oak
(*Quercus robur*)



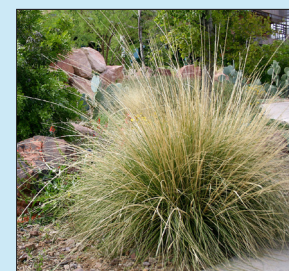
Emerald Carpet Manzanita
(*Arctostaphylos uva-ursi* 'Emerald Carpet')



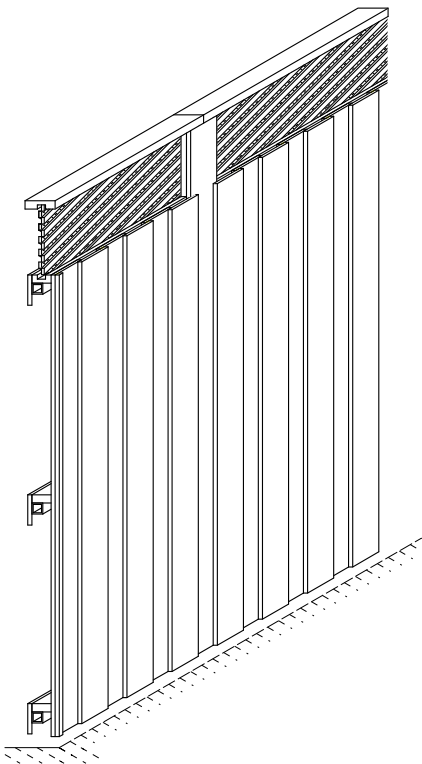
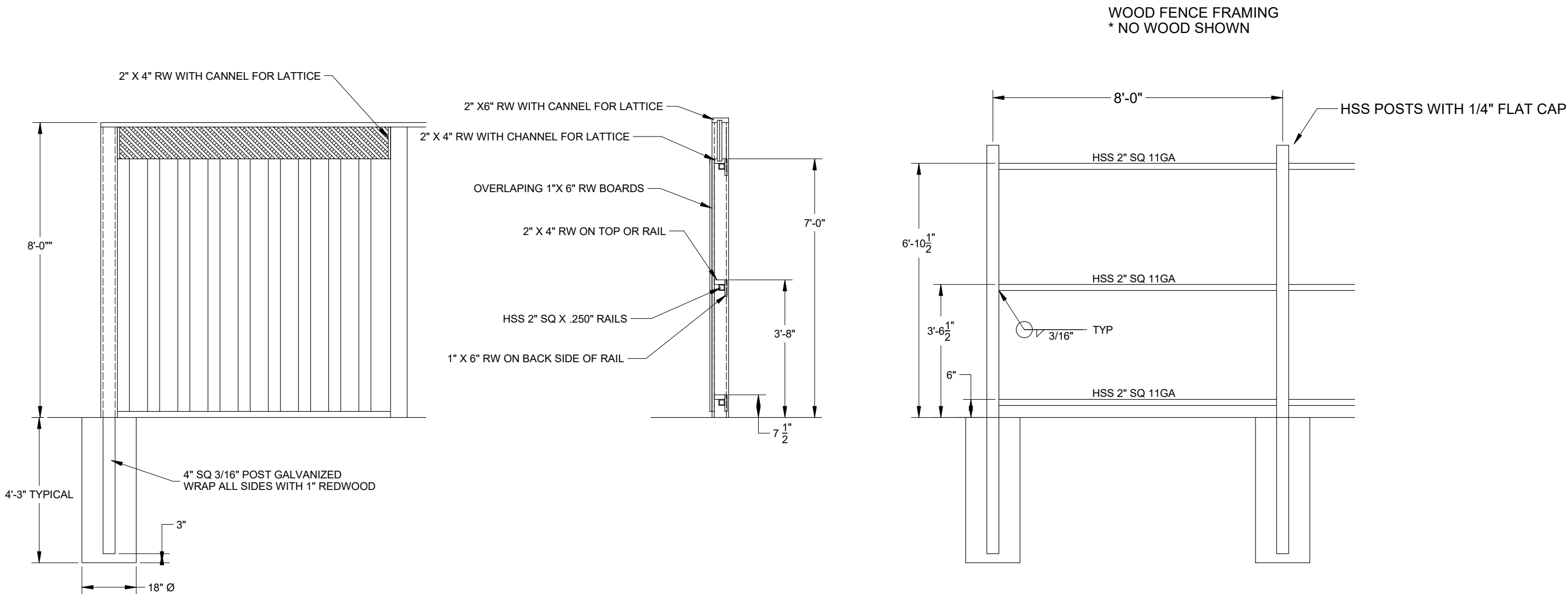
California Lilac
(*Ceanothus* x 'Dark Star')



California Buckwheat
(*Eriogonum fasciculatum foliolosum*)





Deer Grass
(*Muhlenbergia rigens*)

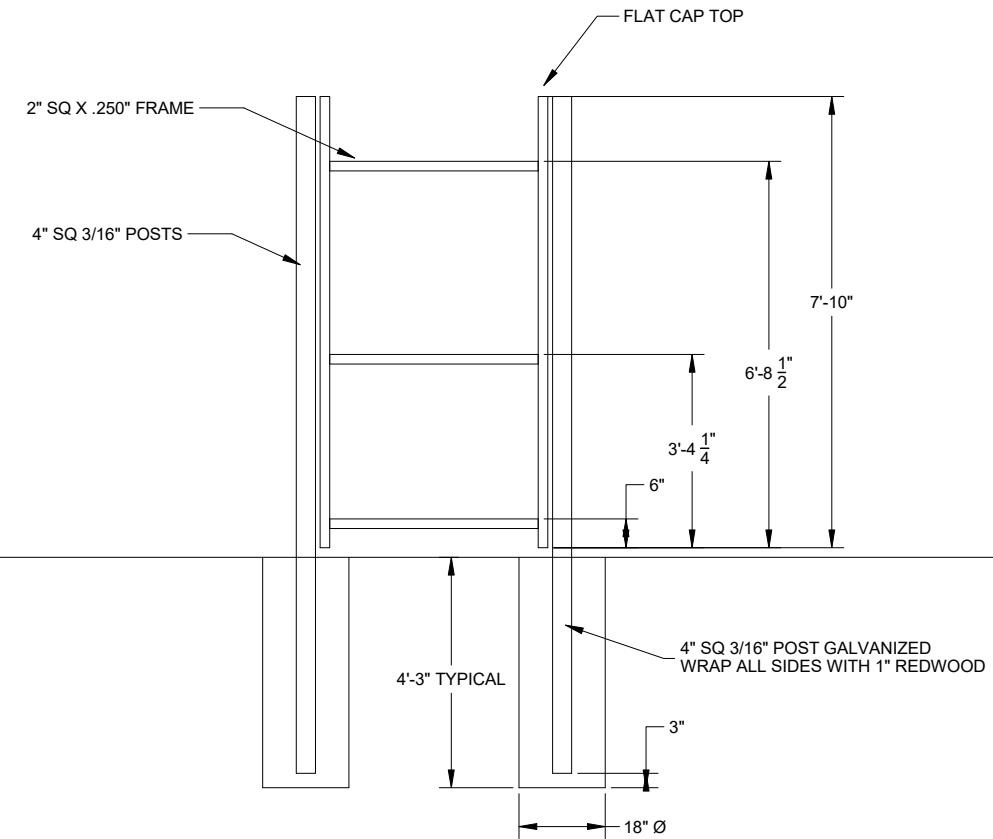
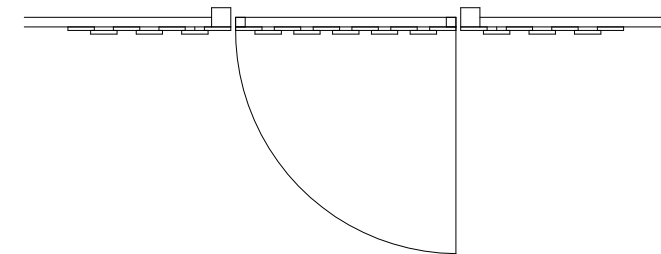
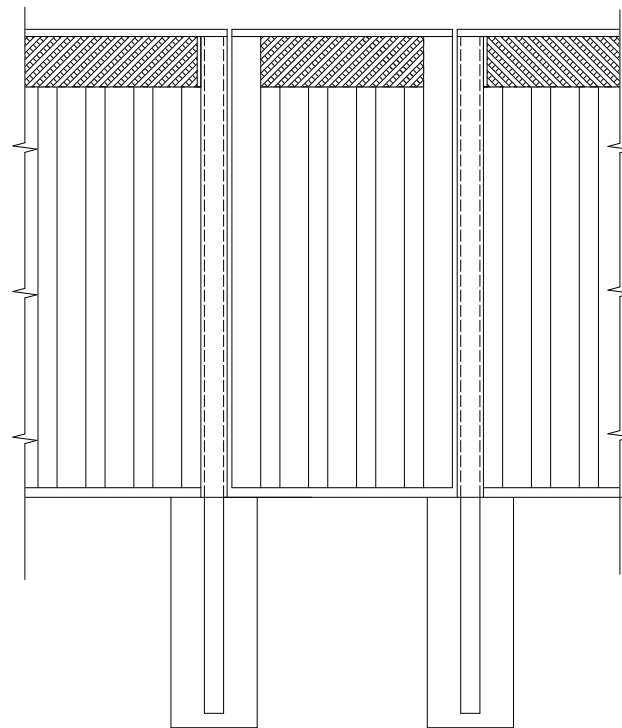


OWNERS REP TO SELECT LATTICE STYLE



NOTES:
- ALL MATERIALS HOT DIP GALV. PRIOR TO FABRICATION
- ALL FIELD WELDS TOUCHED UP WITH 95% ZINC RICH PAINT
- WOOD: ALL WOOD REDWOOD CONSTRUCTION COMMON OR BETTER
- ALL METAL FASTENERS TO HAVE POLYMER COATING OR HOT DIP GALV FINISH

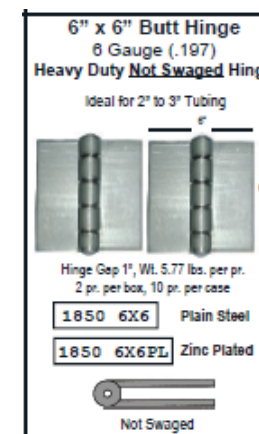
 DRAWN D. TAYLOR		 PG & E NOVATO	
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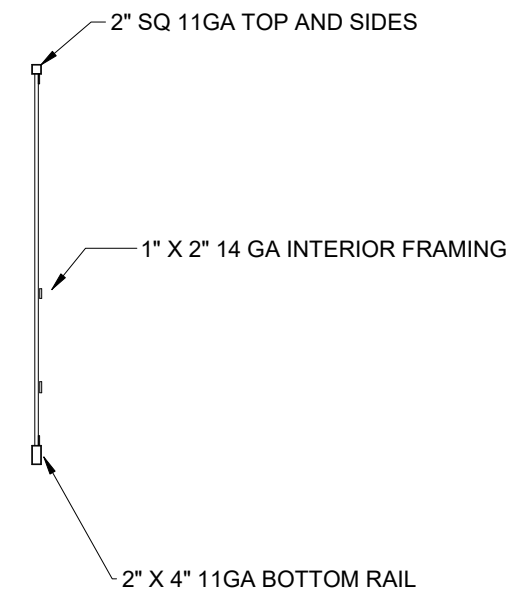
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DRAWN D. TAYLOR		PG & E NOVATO	
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APPROVED	SIZE A	DWG NUMBER D-1	
	SCALE	REV -	SHEET



STRUCTURAL CALCULATIONS

FENCE AND GATE PG & E STONE DRIVE GAS TRANSMISSION STATION NAVATO, CALIFORNIA



WMA 17030

WILLIAM MERKEL ASSOCIATES
STRUCTURAL ENGINEERING



2804 FULTON AVE. SACRAMENTO, Ca (916) 481-1962 FAX (916) 481-0161
E-MAIL WMASE@PACBELL.NET

DESIGN 2016 CBL

WIND 85 mph — EXPOSURE C, $h = 8'$

$$G_F = 0.00256 K_z K_{zt} K_d V^2 I_w$$

$$g_z = 13.70 \text{ #/ft}^2 \text{ USE } 15.0$$

$$K_{zt} = 1.0$$

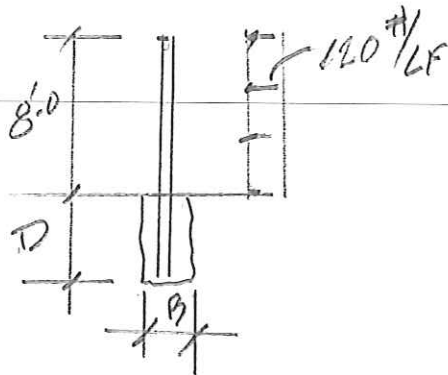
$$K_d = 1.85$$

$$K_z = 1.85$$

$$I_w = 1.0$$

SOLID 8'0" HIGH FENCE w/ POST @ 8'-0"

$$W = 8 \times 15.0 = 120 \text{ #/LF}$$



ALLOW SOIL 350 #/CUFT

$$M_{POST} = 120 \times \frac{8^2}{2} = 3840 = 46080 \text{ #''}$$

$$\text{TRY } 3 \times 3 \times .109 \text{ POST } S = 1.143$$

$$f_b = \frac{46080}{1.143} = 40.3 \text{ KSI NG}$$

$$4 \times 4 \times .109 \quad S = 2.07$$

$$f_b = \frac{46080}{2.07} = 22.26 \text{ KSI OK}$$

10' GATE

$$W = 10 \times 15 + 4 \times 15 = 210 \text{ #/LF}$$

USE 4x4x.109 POST

$$M_{POST} = 210 \times \frac{8^2}{2} = 6720 = 80640 \text{ #''}$$

$$\text{TRY } 4 \times 4 \times \frac{3}{16} \quad S = 3.28 \quad f_b = 24.58 \text{ KSI}$$

USE 4x4x $\frac{3}{16}$ POST OK

4' GATE

$$W = 4 \times 15 = 120 \text{ #/LF}$$

USE 4x4x.109 POST —



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Project Title:
Engineer:
Project Descr:

Project ID:
17030

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ENERCALC, INC. 1983-2017, Build:10.17.8.9, Ver:10.17.8.9

Licensee : WILLIAM MERKEL ASSOCIATES

Pole Footing Embedded in Soil

Lic. #: KW-06001323

Description : -TYPICAL 8' FENCE-

Code References

Calculations per IBC 2012 1807.3, CBC 2013, ASCE 7-10

Load Combinations Used : ASCE 7-10

General Information

Pole Footing Shape Circular
Pole Footing Diameter 18.0 in
Calculate Min. Depth for Allowable Pressures
No Lateral Restraint at Ground Surface
Allow Passive 350.0 psf
Max Passive 1,500.0 psf

Controlling Values

Governing Load Combination : +D+0.60W+H

Lateral Load 0.5760 k
Moment 2.304 k-ft

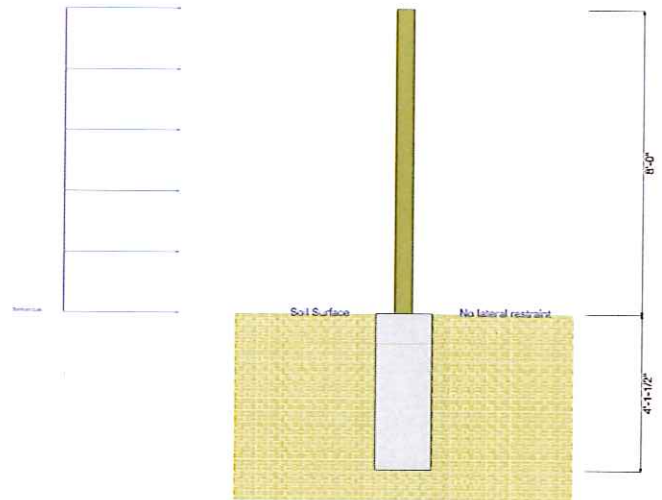
NO Ground Surface Restraint

Pressures at 1/3 Depth

Actual 466.043 psf
Allowable 468.938 psf

Minimum Required Depth 4.125 ft

Footing Base Area 1.767 ft²
Maximum Soil Pressure 0.02829 ksf



Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (klf)		Vertical Load (k)
D : Dead Load	k		k/ft	0.050 k
Lr : Roof Live	k		k/ft	k
L : Live	k		k/ft	k
S : Snow	k		k/ft	k
W : Wind	k	0.120	k/ft	k
E : Earthquake	k		k/ft	k
H : Lateral Earth	k		k/ft	k
Load distance above ground surface	ft	TOP of Load above ground surface	ft	
		8.0		
		BOTTOM of Load above ground surface	ft	

Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at 1/3 Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
+D+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+L+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+Lr+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+S+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750Lr+0.750L+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750L+0.750S+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.60W+H	0.576	2.304	4.13	466.0	468.9	1.000
+D-0.60W+H	0.576	2.304	4.13	466.0	468.9	1.000
+D+0.70E+H	0.000	0.000	0.13	0.0	0.0	1.000

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Project Descr:

Project ID:

170320

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Pole Footing Embedded in Soil

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Lic. # : KW-06001323

Licensee : WILLIAM MERKEL ASSOCIATES

Description : --TYPICAL 8' FENCE--

+D+0.750Lr+0.750L+0.450W+H	0.432	1.728	3.63	416.8	418.1	1.000
+D+0.750Lr+0.750L-0.450W+H	0.432	1.728	3.63	416.8	418.1	1.000
+D+0.750L+0.750S+0.450W+H	0.432	1.728	3.63	416.8	418.1	1.000
+D+0.750L+0.750S-0.450W+H	0.432	1.728	3.63	416.8	418.1	1.000
+D+0.750L+0.750S+0.5250E+H	0.000	0.000	0.13	0.0	0.0	1.000
+0.60D+0.60W+0.60H	0.576	2.304	4.13	466.0	468.9	1.000
+0.60D-0.60W+0.60H	0.576	2.304	4.13	466.0	468.9	1.000
+0.60D+0.70E+0.60H	0.000	0.000	0.13	0.0	0.0	1.000

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Project Title:
Engineer:
Project Descr:

Project ID:

17030

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Pole Footing Embedded in Soil

Lic. #: KW-06001323

Description: --10' GATE--

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Licensee: WILLIAM MERKEL ASSOCIATES

Code References

Calculations per IBC 2012 1807.3, CBC 2013, ASCE 7-10

Load Combinations Used: ASCE 7-10

General Information

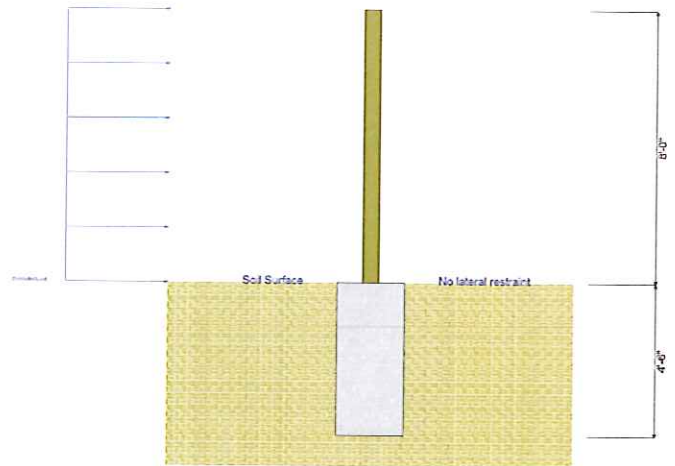
Pole Footing Shape Circular
Pole Footing Diameter 24.0 in
Calculate Min. Depth for Allowable Pressures
No Lateral Restraint at Ground Surface
Allow Passive 350.0 pcf
Max Passive 1,500.0 psf

Controlling Values

Governing Load Combination: +D+0.60W+H
Lateral Load 0.960 k
Moment 3.840 k-ft
NO Ground Surface Restraint
Pressures at 1/3 Depth
Actual 510.69 psf
Allowable 511.68 psf

Minimum Required Depth 4.50 ft

Footing Base Area 3.142 ft²
Maximum Soil Pressure 0.03183 ksf



Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (klf)		Vertical Load (k)
D: Dead Load	k		k/ft	0.10 k
Lr: Roof Live	k		k/ft	k
L: Live	k		k/ft	k
S: Snow	k		k/ft	k
W: Wind	k	0.20	k/ft	k
E: Earthquake	k		k/ft	k
H: Lateral Earth	k		k/ft	k
Load distance above ground surface	ft	TOP of Load above ground surface	ft	
		8.0		
		BOTTOM of Load above ground surface	ft	

Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at 1/3 Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
+D+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+L+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+Lr+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+S+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750Lr+0.750L+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750L+0.750S+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.60W+H	0.960	3.840	4.50	510.7	511.7	1.000
+D-0.60W+H	0.960	3.840	4.50	510.7	511.7	1.000
+D+0.70E+H	0.000	0.000	0.13	0.0	0.0	1.000

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Pole Footing Embedded in Soil

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Lic. #: KW-06001323

Licensee: WILLIAM MERKEL ASSOCIATES

Description: --10' GATE--

+D+0.750Lr+0.750L+0.450W+H	0.720	2.880	4.00	455.8	456.1	1.000
+D+0.750Lr+0.750L-0.450W+H	0.720	2.880	4.00	455.8	456.1	1.000
+D+0.750L+0.750S+0.450W+H	0.720	2.880	4.00	455.8	456.1	1.000
+D+0.750L+0.750S-0.450W+H	0.720	2.880	4.00	455.8	456.1	1.000
+D+0.750L+0.750S+0.5250E+H	0.000	0.000	0.13	0.0	0.0	1.000
+0.60D+0.60W+0.60H	0.960	3.840	4.50	510.7	511.7	1.000
+0.60D-0.60W+0.60H	0.960	3.840	4.50	510.7	511.7	1.000
+0.60D+0.70E+0.60H	0.000	0.000	0.13	0.0	0.0	1.000

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Project Descr:

Project ID:

6
17020

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Pole Footing Embedded in Soil

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Description: -4' GATE POST-

Code References

Calculations per IBC 2012 1807.3, CBC 2013, ASCE 7-10

Load Combinations Used: ASCE 7-10

General Information

Pole Footing Shape Circular
Pole Footing Diameter 18.0 in
Calculate Min. Depth for Allowable Pressures
No Lateral Restraint at Ground Surface
Allow Passive 350.0 psf
Max Passive 1,500.0 psf

Controlling Values

Governing Load Combination: +D+0.60W+H

Lateral Load 0.5760 k
Moment 2.304 k-ft

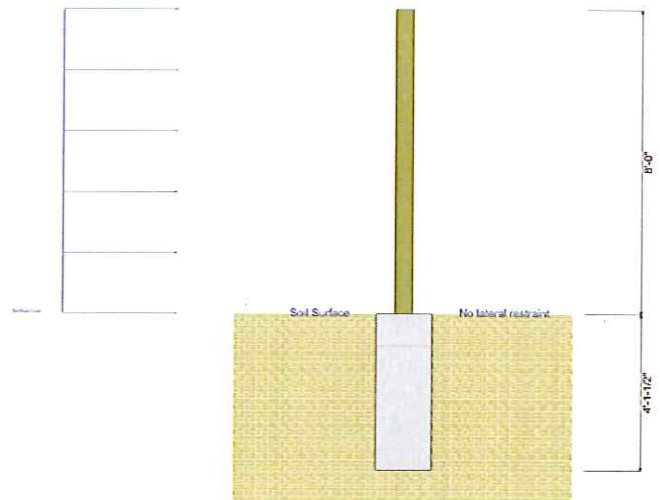
NO Ground Surface Restraint

Pressures at 1/3 Depth

Actual 466.043 psf
Allowable 468.938 psf

Minimum Required Depth 4.125 ft

Footing Base Area 1.767 ft²
Maximum Soil Pressure 0.02829 ksf



Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (klf)			Vertical Load (k)
D: Dead Load	0.0 k	0.0	0.0	0.0 k/ft	0.050 k
Lr: Roof Live	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
L: Live	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
S: Snow	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
W: Wind	0.0 k	0.120	0.0	0.0 k/ft	0.0 k
E: Earthquake	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
H: Lateral Earth	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
Load distance above ground surface	0.0 ft	TOP of Load above ground surface			
		8.0	0.0	0.0 ft	
		BOTTOM of Load above ground surface			
		0.0	0.0	0.0 ft	

Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at 1/3 Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
+D+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+L+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+Lr+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+S+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750Lr+0.750L+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750L+0.750S+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.60W+H	0.576	2.304	4.13	466.0	468.9	1.000
+D+0.70E+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750Lr+0.750L+0.450W+H	0.432	1.728	3.63	416.8	418.1	1.000

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Pole Footing Embedded in Soil

Lic. #: KW-06001323

Licensee: WILLIAM MERKEL ASSOCIATES

Description : -4' GATE POST-

+D+0.750L+0.750S+0.450W+H	0.432	1.728	3.63	416.8	418.1	1.000
+D+0.750L+0.750S+0.5250E+H	0.000	0.000	0.13	0.0	0.0	1.000
+0.60D+0.60W+0.60H	0.576	2.304	4.13	466.0	468.9	1.000
+0.60D+0.70E+0.60H	0.000	0.000	0.13	0.0	0.0	1.000